Red Hat
OpenShift 4

Red Hat OpenShift Container Platform

A hybrid cloud platform open to any application, team, or infrastructure

Key benefits

- Integrated platform includes container host, Kubernetes, and application life cycle management using your choice of infrastructure.
- Operators provide an agile DevOps workflow.
- Security-focused, validated container content and services from a wide partner ecosystem.
- Rapid application development cycles and more frequent software deployments.
- Simple installation and upgrades, even in air-gapped environments.
- Application portability with lower operational cost across hybrid cloud, multicloud, and edge footprints.
- Consistent development experience across the application life cycle.

Product overview

Red Hat® OpenShift® Container Platform is the industry-leading hybrid cloud application platform powered by containers and Kubernetes. Using OpenShift Container Platform simplifies and accelerates the development, delivery, and life cycle management of a hybrid mix of applications, consistently anywhere across on-premise, public clouds, and edge. Whether modernizing existing applications, developing new cloud-native applications, integrating data analytics and artificial intelligence and machine learning (AI/ML) capabilities to achieve data driven insights, or integrating software from independent software vendors (ISVs) and cloud providers, OpenShift Container Platform is designed to deliver continuous innovation and speed at any scale, helping organizations to be ready for today and build for the future.

OpenShift Container Platform

OpenShift Container Platform is self-managed and includes Red Hat Enterprise Linux® CoreOS, over-the-air updates, container runtime, networking, ingress, monitoring, logging, container registry, authentication, and authorization solutions. These components are tested together for unified operations on a complete Kubernetes platform spanning every cloud environment.

Red Hat OpenShift portfolio: A choice of container solutions

Red Hat OpenShift is the leading enterprise Kubernetes platform, trusted by organizations across industries and the globe for application innovation.

- **Red Hat OpenShift Kubernetes Engine** (formerly Red Hat OpenShift Container Engine) delivers the foundational, security-focused capabilities of enterprise Kubernetes on Red Hat Enterprise Linux CoreOS to run containers in hybrid cloud environments.
- **Red Hat OpenShift Container Platform** adds a full set of operations and developer services and tools, including Serverless, Service Mesh, and Pipelines. With OpenShift Container Platform, organizations can adopt a hybrid cloud strategy and start building cloud-native applications. The proven platform includes a complete set of services that empower developers to code with speed and agility for applications while providing more flexibility and efficiency for IT operations teams.
- **Red Hat OpenShift Platform Plus** builds on the capabilities of OpenShift Container Platform with advanced multicluster security features, Day-2 management capabilities, integrated data management, and a global container registry. With OpenShift Platform Plus, organizations can more consistently protect and manage applications with increased security across open hybrid cloud environments and application life cycles.

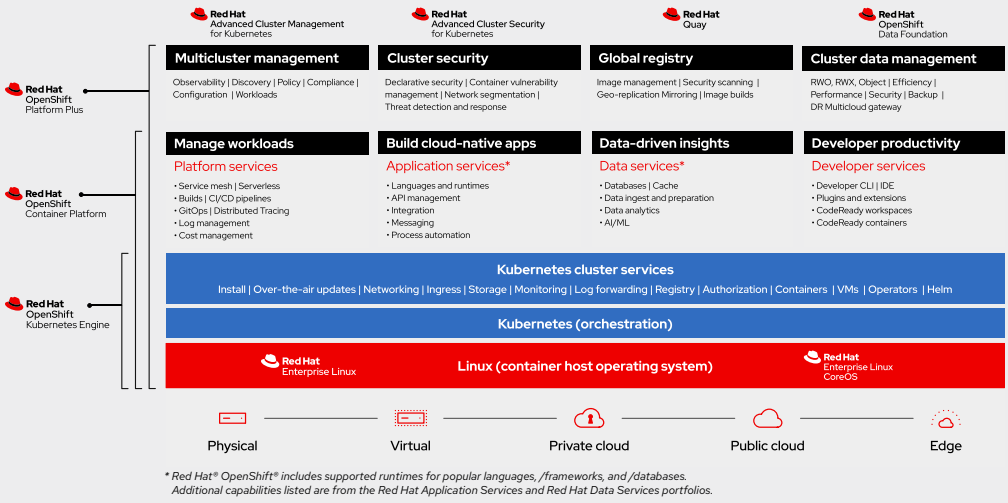

Figure 1. OpenShift Container Platform capabilities and complementary Red Hat products

Discover more about other Red Hat OpenShift offerings.

Advanced capabilities

OpenShift Container Platform supports multiple advanced capabilities.

- Automated Day 1 and Day 2 operations
  - **Operators** provide automated installation, upgrades and life cycle management for applications, ensuring applications are running correctly and making necessary changes to comply with the desired configuration.
  - **Helm** brings a Kubernetes-native package manager that developers can use to package their applications and define how to package, deploy, and configure them. It can also automate Day 1 tasks and a limited number of Day 2 operations.
- **Red Hat OpenShift Service Mesh** provides a uniform way to manage, connect, and observe applications as managing and security between services become more challenging.
- **Red Hat OpenShift Serverless** allows an application to use compute resources and automatically scale up or down based on use, driven on demand from some event sources.
- **Red Hat OpenShift Pipelines** brings a Kubernetes-native continuous integration and continuous development (CI/CD) solution on Tekton that provides a streamlined user experience through the OpenShift console.
- **Red Hat OpenShift GitOps** is built from the open source Argo CD project and lets IT teams implement GitOps workflows for cluster configuration and application delivery for more speed, security, and scalability software development.
- **Red Hat OpenShift Virtualization** brings virtual machines to Red Hat OpenShift to modernize existing applications or run them alongside containers, and serverless, in a Kubernetes-native architecture.

- **Edge computing** includes 3-node clusters, remote worker nodes, and single nodes to provide organizations full Kubernetes capabilities in a smaller footprint.
- **Support for diverse workloads** with consistency across applications with a common platform to accelerate the deployment of intelligent applications across a hybrid cloud environment.
  - Supported workloads include:
    - Databases.
    - Data analytics.
    - AI/ML software, programming languages, and frameworks.
    - Logging and monitoring.
    - Web and application servers.
    - Message broker services.

For more information about Red Hat OpenShift, visit try Red Hat OpenShift.

Features and benefits

Features	Benefits
Scalability	Applications running on OpenShift Container Platform can scale to thousands of instances across hundreds of nodes in seconds.
Multicluster management	Consolidated views of clusters and the use of Kubernetes technologies offer a consistent management layer both on site and public clouds.
Persistent storage	OpenShift Container Platform supports a broad spectrum of enterprise storage solutions, including Red Hat OpenShift Data Foundation and our ecosystem (e.g., DellEMC, Portworx, NetApp.) for running both stateful and stateless applications.
Open source standards	OpenShift Container Platform incorporates Open Containers Initiative (OCI), docker-formatted containers and Cloud Native Computing Foundation (CNCF)-certified Kubernetes for container orchestration, plus other open source technologies.
Container portability	Container images built on the OCI industry-standard ensure portability between developer workstations and production OpenShift Container Platform environments.
3-node clusters	Access all of the capabilities of a complete Kubernetes platform with a highly available, smaller footprint for edge architectures comprising both supervisor and worker nodes.

Features	Benefits
Remote worker nodes	Place single worker nodes in remote locations where centralized supervisor nodes manage them from a larger site, such as a core or regional datacenter—especially important for remote edge locations that have space-constrained environments and limited power or cooling capabilities.
Single nodes	Combines control and worker capabilities to address edge use cases with small physical environments, low bandwidth, or disconnected sites.
Multiarchitecture support	Whether Arm, x86, IBM Z or IBM Power, Red Hat OpenShift runs on the hardware that is best suited for your application.
Automated installation and upgrades	Automated installation and over-the-air platform upgrades are supported in cloud with Amazon Web Services (AWS), Google Cloud Platform, IBM Cloud Virtual Private Cloud, and Microsoft Azure, and on-premise using VMware and vSphere, Nutanix, Red Hat OpenStack® Platform, IBM Power Systems, IBM Z, LinuxONE, or bare metal. Services used from the OperatorHub can be deployed fully configured and upgradable with a single operation.
Preinstalled Red Hat OpenShift hardware	Speed up and simplify edge deployments powered by clusters that arrive with Red Hat OpenShift preinstalled directly from our original equipment manufacturer (OEM) partners, reducing the resources and time to operationalize new hardware—placing your applications adjacent to data sources.
Automation	Streamlined and automated container and application builds, deployments, scaling, health management, and more are standard.
Robust ecosystem	An expanding ecosystem of partners provides a wide variety of integrations. Third parties deliver additional storage and network providers, integrated development environment (IDE), CI, and integrations, ISV solutions, and more.
Self-service provisioning	Developers more quickly and more efficiently create applications on demand from the tools they use most, while operations retain full control over the entire environment.
Multilanguage support	Developers can use various languages, frameworks, and databases on the same platform.
Integrated CI/CD pipelines	Developers reduce manual deployment work to deploy higher-quality software for CI and automated tests.

Features	Benefits
MLOps	Take advantage of model development, training, serving and monitoring not only in a cloud environment, but also on-premise and to the edge.
User interfaces	Admins and developers have direct access to a rich set of command-line tools, an extensible web console, and Eclipse-based IDEs.
Source-to-image deployment	OpenShift Container Platform provides a toolkit and workflow for producing ready-to-run images by injecting source code into a container and letting the container prepare that source code for execution.

About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. A trusted adviser to the Fortune 500, Red Hat provides award-winning support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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